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AVEK PATENTS

→ EPO PCT DEMAND 004/005

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(TWICE) AMENDED CLAIMS

1. A method of cutting a sheet-like piece of metal into one or several smaller pieces by using camera means and a controllable cutting apparatus, the directions and values of the coordinate systems of which are calibrated to correspond to each other, characterised in that following measures are taken:
- the piece to be cut is placed on a cutting surface located within the recording area of the camera means,
 - the piece is photographed by the camera means and on the basis thereof the outlines of the piece are determined,
 - the information on the outlines of the piece is input into the positioning system, where positioning data is created by selecting at least one type of a small part and, when applicable, adding a desired number of said at least one type of small parts into the outline image inside the outlines and the cutting paths are established and input into the control system of the cutting machine which determines necessary parameters for the cutting and on the basis of these the cutting of the piece into parts is carried out on said cutting surface under the control of the said control system according to given instructions.
2. A method according to claim 1, characterised in that also the starting point of the cutting and the cutting path are determined automatically or by operator-aided means, and the positioning data is input into the control system of the cutting apparatus.
3. A method according to claim 1 or 2, characterised in that in the automatic positioning on the sheet the cutting paths, starting points and volumes as well as the use of material are optimised.
4. A method according to any one of the preceding claims, characterised in that the operation of the cutting apparatus changes from an incremental, i.e. a

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sheet blank specific, coordinate system proportioned to the zero point over to an absolute coordinate system, i.e. to a coordinate system covering the whole work station.

- 5 5. A method according to any one of the preceding claims, characterised in that a numerically controlled thermal cutting machine, a manipulator or a robot is used as a cutting apparatus.
- 10 6. A method according to any one of the preceding claims, characterised in that as ancillary equipment while photographing the object, a light source to be reflected, most preferably a laser bar, may be used to facilitate the detectability and/or to provide additional information.
- 15 7. A method according to any one of the preceding claims, characterised in that the pieces to be cut compose parts of a metal structure, for instance a watercraft, ship or another marine equipment, a bridge, paper machine, building, vehicle such as a train, lorry, mining vehicle or a tank or a platform structure.

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